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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,343	08/26/2005	Wang Min	21108.0021U2	5753

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Ballard Spahr Andrews & Ingersoll, LLP
SUITE 1000
999 PEACHTREE STREET
ATLANTA, GA 30309-3915

EXAMINER	
PAK, YONG D	

ART UNIT	PAPER NUMBER
1652	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,343	MIN ET AL.	
	Examiner	Art Unit	
	YONG D. PAK	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-66* is/are pending in the application.

4a) Of the above claim(s) *11-64* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 65-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This application is a 371 of PCT/US03/22847.

The amendment filed on June 10, 2008, amending claims 1-10 and adding claims 65-66, has been entered.

Claims 1-66 are pending. Claims 11-64 are withdrawn. Claims 1-10 and 65-66 are under consideration.

Response to Arguments

Applicant's amendment and arguments filed on June 10, 2008, have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Claim Objections

Claims 1 and 7 are objected for the recitation of "ASK1". Abbreviation/acronym unless otherwise obvious and/or commonly used in the art, should not be recited in the claims without at least once reciting the entire phrase for which the abbreviation/acronym is used.

Claim 65 is objected for the recitation of double periods in line 6.

Appropriate corrections are required.

Claim Rejections - 35 USC § 101

In view of the amendment of claims 1-10, the rejection of claims 1-10 under 35 U.S.C. 101, as being drawn to non-statutory subject matter has been **withdrawn**.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

In view of the amendment of claims 3-4, 6, and 9, the rejection of claims 3-4, 6, 9 and claims 5-6 and 10 depending therefrom under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been **withdrawn**.

In view of the amendment of claims 4-6 and 10, the rejection of 4-6 and 10 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been **withdrawn**.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

In view of the amendment of claims 1-10, the rejection of claims 1-10 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, has been **withdrawn**.

In view of the amendment of claims 1-10, the rejection of claims 1-10 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, has been **withdrawn**.

Claims 1-10 and 65-66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-10 and 65-66 are drawn to a composition comprising a thioredoxin having at least 90% sequence identity to SEQ ID NO:1 and said thioredoxin having a deletion/substitution at reside 32 or 35, but not both and further having a substitution/deletion at residue 69. However, a thioredoxin having at least 90% sequence identity to SEQ ID NO:1 was not described in the application as originally filed nor in any of its parent applications. Also, a thioredoxin having at least 90% sequence identity to SEQ ID NO:1 and having a deletion/substitution at reside 32 or 35, but not both and further having a substitution/deletion at residue 69 was not described in the

application as originally filed nor in any of its parent applications. Therefore, claims 1-10 and 65-66 contain new matter.

Given this lack of description of the a composition comprising a thioredoxin having at least 90% sequence identity to SEQ ID NO:1 and said thioredoxin having a deletion/substitution at reside 32 or 35, but not both and further having a substitution/deletion at residue 69, the specification fails to sufficiently describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize that applicants were in possession of the inventions of 1-10 and 65-66 at the time of filing of the instant application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 were rejected under 35 U.S.C. 102(a) as being anticipated by Bishopric et al.

In view of applicant's argument that the author of Bishopric et al. derived his or her knowledge of the relevant subject matter from applicant, the rejection has been **withdrawn**.

Claims 1-3, 6-10, and 65-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Yodoi et al.

Claims 1-3, 6-10, and 65-66 are drawn to a composition comprising thioredoxin having at least 90% sequence identity to SEQ ID NO:1 and comprising a cysteine at residue 32 or 35 but not both, substitution or deletion or a substitution or deletion at residue 35 and pharmaceutically acceptable carrier, wherein said thioredoxin binds to ASK1, is resistant to oxidizing effects of cytokines or reactive oxygen species or S-nitrosylation of a SH-group by nitrous oxide.

Yodoi et al. (EP 0 853 088 A2 – cited previously on form PTO-892) discloses a thioredoxin comprising a substitution at a cysteine residue at position 32 and a substitution at position 35, wherein said thioredoxin is stable under oxidizing conditions (column 1, lines 3-5, Figure 1 on page 8 and Column 4 line 30 through column 5, line 14). The wild type thioredoxin of Yodoi et al. is 100% identical to SEQ ID NO:1 (see Figure 1 and page 2, lines 27-49). Examiner takes the position that the mutant thioredoxins of Yodoi et al. inherently possesses the same material structure and functional characteristics as the enzyme of the instant invention since (1) both enzymes have the same amino acid substitution (2) both enzymes are stable in oxidizing conditions, and (3) the Office does not have facilities for examining and comparing applicant's enzyme with the enzyme of the prior art, the burden is on the applicant to show a novel or unobvious difference between the claimed product and the product of the prior art (i.e., that the mutant thioredoxins of the prior art does not possess the same material structure and functional characteristics of the claimed thioredoxin). See *In re*

Best, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Figzgerald* et al., 205 USPQ 594. Regarding the limitation of "composition" comprising the thioredoxin and a "pharmaceutically acceptable carrier", Yodoi et al. discloses a buffer solution comprising the mutant thioredoxin and examiner takes the position that a buffer solution is a composition comprising a pharmaceutically acceptable carrier. Therefore, the reference of Yodoi et al. anticipates claims 1-3, 6-10, and 65-66.

In response to the previous Office Action, applicants have traversed the above rejection.

Applicants argue that while Yodoi et al. have disclosed a TRX variant as claimed, they did not disclose a use for this variant. Examiner respectfully disagrees. First, the instant claims are not drawn to a method of using the TRX variant. Second, applicants agree with the Examiner that Yodoi et al. discloses a TRX variant as claimed, page 13, section B on the Remarks filed on June 10, 2008. MPEP 2112 is quite clear that "There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure *at the time of invention*, but only that the subject matter is in fact inherent in the prior art reference. *Schering Corp. v. Geneva Pharm. Inc.*, 339 F.3d 1373, 1377, 67 USPQ2d 1664, 1668 (Fed. Cir. 2003)". Something which is old does not become patentable upon the discovery of a new property.

Hence the rejection is maintained.

Claims 1-4, 6-9, and 65-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Oblong et al.

Claims 1-4, 6-9, and 65-66 are drawn to a composition comprising thioredoxin having at least 90% sequence identity to SEQ ID NO:1 and comprising a cysteine at residue 32 or 35 but not both, substitution or deletion or a substitution or deletion at residues 32 or 35 and pharmaceutically acceptable carrier, wherein said thioredoxin binds to ASK1, is resistant to oxidizing effects of cytokines or reactive oxygen species or S-nitrosylation of a SH-group by nitrous oxide.

Oblong et al. (J Biol Chem. 1994 Apr 22;269(16):11714-20 – form PTO-892) discloses a thioredoxin comprising a substitution at a cysteine residue at position 32 with a serine residue and a thioredoxin comprising a substitution at a cysteine residue at position 35 with a serine residue (abstract and , Figure 2, Table II, and page 11715). The wild type thioredoxin of Oblong is 100% identical to SEQ ID NO:1 (see Table I and page 11715). Examiner takes the position that the mutant thioredoxins of Oblong et al. inherently possesses the same material structure and functional characteristics as the enzyme of the instant invention since (1) both enzymes have the same amino acid substitutions and (2) the Office does not have facilities for examining and comparing applicant's enzyme with the enzyme of the prior art, the burden is on the applicant to show a novel or unobvious difference between the claimed product and the product of the prior art (i.e., that the mutant thioredoxins of the prior art does not possess the same material structure and functional characteristics of the claimed thioredoxin). See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Figzgerald* et al., 205

USPQ 594. Regarding the limitation of "composition" comprising the thioredoxin and a "pharmaceutically acceptable carrier", Oblong et al. discloses a buffer solution comprising the mutant thioredoxin and examiner takes the position that a buffer solution is a composition comprising a pharmaceutically acceptable carrier. Therefore, the reference of Oblong et al. anticipates claims 1-4, 6-9, and 65-66.

Examiner Comment

Other Relevant Art

Liu et al. (reference A26 – form PTO-1449) discloses a thioredoxin comprising a substitution at a cysteine residue at position 32 and 35 (abstract), but is not available as prior art because the reference is not by another.

Conclusion

Claims 1-10 are rejected.

None of the claims are allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Pak whose telephone number is 571-272-0935. The examiner can normally be reached 6:30 A.M. to 5:00 P.M. Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nashaat Nashed can be reached on 571-272-0934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Yong D Pak/
Primary Examiner, Art Unit 1652